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US005551445A

**United States Patent** [19][11] **Patent Number:** **5,551,445****Nashner**[45] **Date of Patent:** **Sep. 3, 1996****[54] APPARATUS AND METHOD FOR  
MOVEMENT COORDINATION ANALYSIS****[75] Inventor:** **Lewis M. Nashner**, Lake Oswego,  
Oreg.**[73] Assignee:** **NeuroCom International, Inc.**,  
Clackamas, Oreg.**[21] Appl. No.:** **147,613****[22] Filed:** **Nov. 5, 1993****Related U.S. Application Data****[62]** Division of Ser. No. 749,045, Aug. 22, 1991, Pat. No. 5,269,318, which is a division of Ser. No. 7,294, Jan. 27, 1987, Pat. No. 5,052,406, which is a continuation-in-part of Ser. No. 873,125, Jun. 11, 1986, Pat. No. 4,738,269, which is a continuation of Ser. No. 408,184, Aug. 16, 1982.**[51] Int. Cl.<sup>6</sup>** ..... **A61B 5/10****[52] U.S. Cl.** ..... **128/782; 128/774; 128/733****[58] Field of Search** ..... **128/782, 774,  
128/733; 434/258, 55****[56] References Cited****U.S. PATENT DOCUMENTS**

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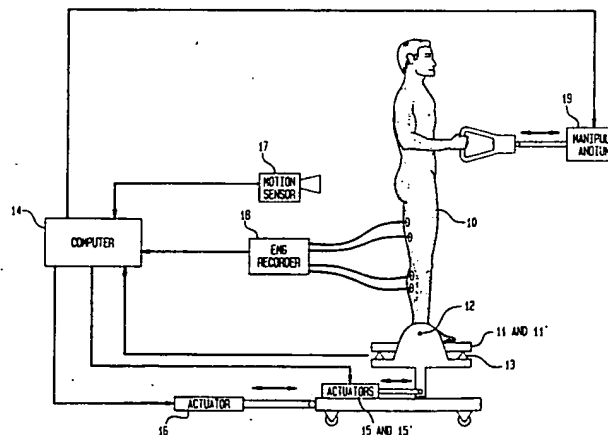
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(List continued on next page.)

**Primary Examiner**—Sam Rimell**Attorney, Agent, or Firm**—Bromberg & Sunstein**[57] ABSTRACT**

Methods and devices are provided for evaluating among the limbs of a subject the distribution of impairments of the subject's ability to coordinate the muscular contractions to execute effective postural movements. The subject may be placed on two independently movable support surfaces, either of which may be fixed or sway-referenced. The subject's ability to maintain his or her equilibrium position is then monitored. In another embodiment, the subject is perturbed from a position of equilibrium. The perturbation may be caused by a displacement of the support surfaces, or by having the subject grasp a handle, which may be moved, or against which the subject may push or pull. The latency and strength of the responses of the subject's limbs are measured and compared to each other and to a normal population.

**9 Claims, 11 Drawing Sheets**

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*If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number and timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.*



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*Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.*

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### United States Patent

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*If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.*

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